

# Health effects of dietary risks in 195 countries, 1990–2017: A systematic analysis for the Global Burden of Disease Study 2017

Ashkan Afshin et al., “Health Effects of Dietary Risks in 195 Countries, 1990–2017: A Systematic Analysis for the Global Burden of Disease Study 2017,” The Lancet 393, no. 10184 (2019): 1958–72, [https://doi.org/10.1016/S0140-6736\(19\)30041-8](https://doi.org/10.1016/S0140-6736(19)30041-8).

## BACKGROUND

- + Suboptimal diet is a risk factor for non-communicable diseases (NCDs)
- + Previous studies have provided evidence for potential relationships between specific dietary factors (i.e. fruit, vegetables, processed meat and trans fats) and NCDs, including diabetes, ischaemic heart disease and colorectal cancer

# AIM

This study aimed to evaluate the consumption of major foods and nutrients across 195 countries

And to quantify the impact of their suboptimal intake on NCD mortality and morbidity

# METHODS

15 dietary risk factors were selected:

## + Diets high in...



...trans fatty acids



...sodium



...processed meat



...red meat



...sugar sweetened beverages

## + Diets low in...



...fruits



...vegetables



...legumes



...whole grains



...nuts and seeds



...milk



...calcium



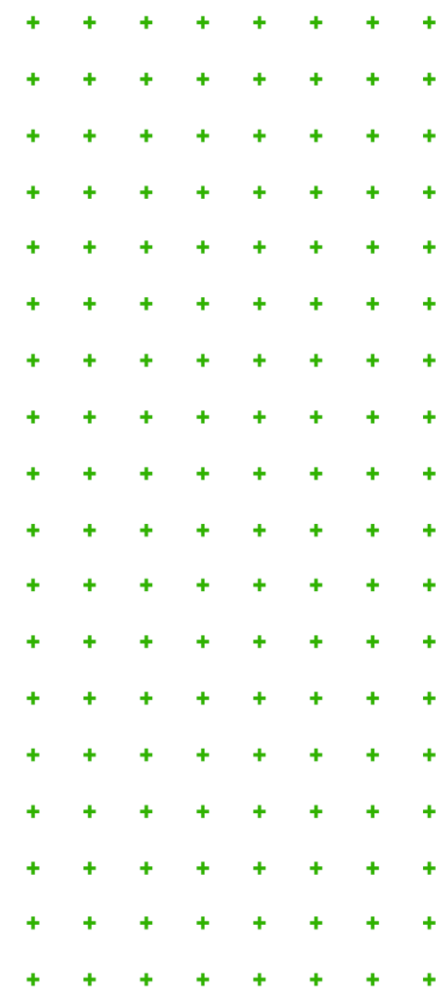
...seafood omega-3 fatty acids



...polyunsaturated fatty acids



...fiber



# METHODS

- + Subjects: adults aged 25 or older across 195 countries
- + The optimal level of intake of each dietary factor was defined as the level of risk exposure that minimizes the risk from all causes of death
- + A systematic review was done to identify representative nutrition surveys, providing data on consumption of each dietary factor
- + For each diet (factor) - disease pair, data from published meta-analyses were used to estimate the relative risk of mortality and morbidity

## RESULTS

- + Globally, in 2017, the consumption of healthy food was suboptimal
- + The consumption of sugar-sweetened beverages, processed and red meat, and sodium were above optimal levels
- + The largest gaps between optimal and actual intake were observed for nuts and seeds, milk and whole grains

# RESULTS

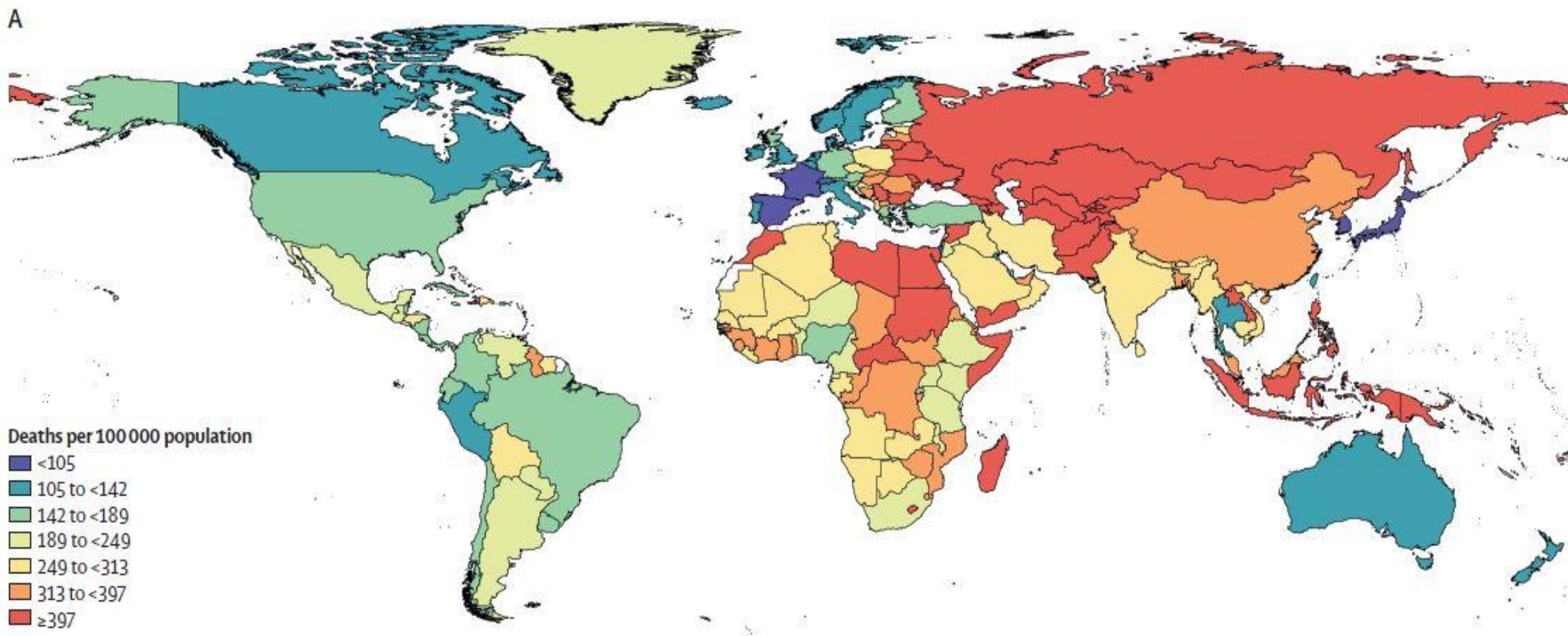
## + Impact of diet on global mortality and DALYs\* in 2017

- Dietary risk factors were responsible for 11 million deaths and 255 million DALYs
- Cardiovascular disease was the main cause of diet-associated deaths: 10 million deaths and 207 million DALYs
- Cancer yielded 913.090 deaths and 20 million DALYs
- Type II diabetes caused 338.714 deaths and 24 million DALYs

## + Half of diet related deaths were attributed to

- High intake of sodium: 3 million deaths and 70 million DALYs
- Low intake of fruits: 2 million deaths and 65 million DALYs
- Low intake of whole grains: 3 million deaths and 82 million DALYs

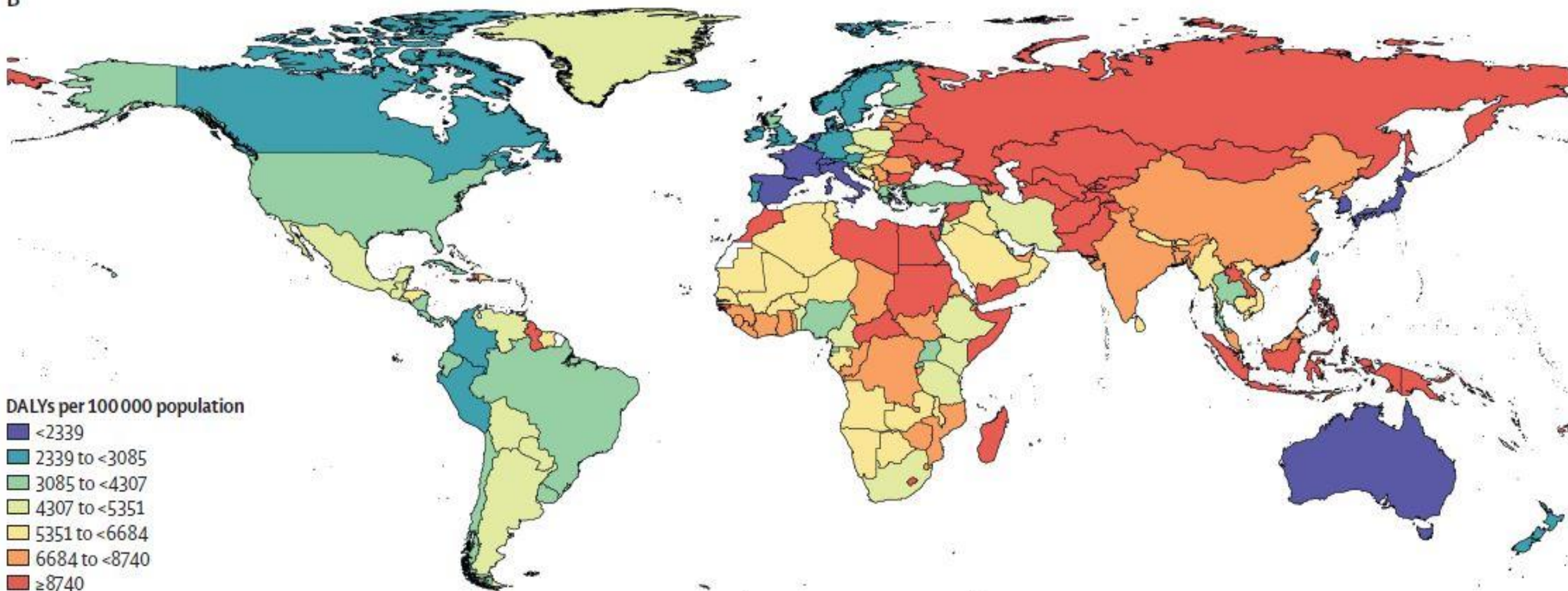
## Age-standardized mortality rate per 100 000 population attributable to diet in 2017





## Age-standardized DALY rate per 100 000 population attributable to diet in 2017

B



# CONCLUSION

- + Improvement of diet could potentially prevent 1 in every 5 deaths
- + Dietary risks affect people regardless of age, sex and other sociodemographic characteristics
- + Suboptimal diet is responsible for more deaths than any other risk factor, including smoking

## Articles



### Health effects of dietary risks in 195 countries, 1990–2017: a systematic analysis for the Global Burden of Disease Study 2017



GBD 2017 Diet Collaborators\*

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#### Summary

**Background** Suboptimal diet is an important preventable risk factor for non-communicable diseases (NCDs); however, its impact on the burden of NCDs has not been systematically evaluated. This study aimed to evaluate the consumption of major foods and nutrients across 195 countries and to quantify the impact of their suboptimal intake on NCD mortality and morbidity.

**Methods** By use of a comparative risk assessment approach, we estimated the proportion of disease-specific burden attributable to each dietary risk factor (also referred to as population attributable fraction) among adults aged 25 years or older. The main inputs to this analysis included the intake of each dietary factor, the effect size of the dietary factor on disease endpoint, and the level of intake associated with the lowest risk of mortality. Then, by use of disease-specific population attributable fractions, mortality, and disability-adjusted life-years (DALYs), we calculated the number of deaths and DALYs attributable to diet for each disease outcome.

**Findings** In 2017, 11 million (95% uncertainty interval [UI] 10–12) deaths and 255 million (234–274) DALYs were attributable to dietary risk factors. High intake of sodium (3 million [1–5] deaths and 70 million [34–118] DALYs), low intake of whole grains (3 million [2–4] deaths and 82 million [59–109] DALYs), and low intake of fruits (2 million [1–4] deaths and 65 million [41–92] DALYs) were the leading dietary risk factors for deaths and DALYs globally and in many countries. Dietary data were from mixed sources and were not available for all countries, increasing the statistical uncertainty of our estimates.

**Interpretation** This study provides a comprehensive picture of the potential impact of suboptimal diet on NCD mortality and morbidity, highlighting the need for improving diet across nations. Our findings will inform implementation of evidence-based dietary interventions and provide a platform for evaluation of their impact on human health annually.

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